# THE NATURALIST.

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## MAN.

(Continued from page 333.)

DIFFERENCES IN MORAL AND INTELLECTUAL QUALITIES. In our last number we detailed the results, deducible from experience, respecting the differences of moral feelings and intellectual power. Having stated them strongly, we are anxious to express our decided opinion, that these differences are not sufficient in any instance to warrant us in referring a particular race to an originally different species. They are not greater in kind or degree than those which we see in many animals; as in horses, asses, mules, dogs and cocks. We protest especially against the opinion, which either denies to the Africans the enjoyment of reason, or ascribes to the whole race propensities so vicious, malignant and treacherous, as would degrade them even below the level of the brute. It can be proved most clearly, and the preceding observations are sufficient for this purpose, that there is no circumstance of bodily structure so peculiar to the Negro, as not to be found also in other far distant nations; no character, which does not run into those of other races by the same insensible gradations as those which connect together all the varieties of mankind. We deem the moral and intellectual character of the Negro inferior, and decidedly so, to that of the European; and, as this inferiority arises from a corresponding difference of organization, we must regard it as his natural destiny: but we do not consider him more inferior than the other dark races. We can neither admit the reasoning nor perceive the humanity of those who, after tearing the African from his native soil, carrying him to the West Indies, and dooming him there to perpetual slavery and labor, complain that his under-

standing shows no signs of improvement, and that his temper and disposition are incorrigibly perverse, faithless and treacherous. Let us, however, observe him in a somewhat more favorable state than in those dreadful receptacles of human misery, the crowded decks of the slave ship, or in the less openly shocking, but constrained and extorted, and therefore painful labors of the sugar plantation.

That the Negroes behave to others according to the treatment they receive, may be easily gathered from the best sources of information. They have not, indeed, reached that sublime height, the *beau idéal* of morality, the returning good for evil, probably because their masters have not yet found leisure enough from the pursuit of riches to instil into them the true spirit of Christianity. 'The feelings of the Negroes,' says an accurate observer, 'are extremely acute. According to the manner in which they are treated, they are gay or melancholy, laborious or slothful, friends or enemies. When well fed, and not maltreated, they are contented, joyous, ready for every enjoyment; and the satisfaction of their mind is painted in their countenance. But, when oppressed and abused, they grow peevish, and often die of melancholy. Of benefits and abuses they are extremely sensible; and against those who injure them they bear a mortal hatred. On the other hand, when they contract an affection to a master, there is no office, however hazardous, which they will not boldly execute, to demonstrate their zeal and attachment. They are naturally affectionate, and have an ardent love for their children, friends and countrymen. The little they possess they freely distribute among the necessitous, without any other motive than that of pure compassion for the indigent.'

The travels of Barrow, Le Vaillant, and Mungo Park, abound with anecdotes honorable to the moral character of the Africans, and proving that they betray no deficiency in the amiable qualities of the heart. One of these gives us an interesting portrait of the chief of a tribe: 'His countenance was strongly marked with the habit of reflection: vigorous in his mental and amiable in his personal qualities, Gaika was at once the friend and ruler of a happy people, who universally pronounced his name with transport, and blessed his abode as the seat of felicity.' Some European kings might take a lesson from this savage.

Mr. Barrow gives a picture, by no means unpleasing, of the Hottentots. Their indolence probably arises from the state of subjection in which they live; as the wild Bosjesmen are particularly active and cheerful.

They are a mild, quiet and timid people; perfectly harmless, honest, faithful: and, though extremely phlegmatic, they are kind and affectionate to each other, and not incapable of strong attachments. A Hottentot would share his last morsel with his companions. They have little of that kind of art or cunning that savages generally possess. If accused of crimes, of which they have been guilty, they generally divulge the truth. They seldom quarrel among themselves, or make use of provoking language. Though naturally fearful, they will run into the face of danger if led on by their superiors. They suffer pain with patience. They are by no means deficient in talent.

The Bosjesman, though in every respect a Hottentot, yet in his turn of mind differs very widely from those that live in the colony. In his disposition he is lively and cheerful; and in his person active. Their talents are far above mediocrity; and, averse to idleness, they are seldom without employment. They are very fond of dancing, exhibit great industry and acuteness in their contrivances for catching game, and considerable mechanical skill in forming their baskets, mats, nets, arrows, &c. &c.

We see no reason to doubt that the Negro race, taken all together, is equal to any in natural goodness of heart. It is consonant to our general experience of mankind, that the latter quality should be deadened or completely extinguished in the slave ship or plantation; indeed, it is as little creditable to the heads as to the hearts of their white masters, to expect affection and fidelity from slaves after the treatment they too often experience.

The acute and accurate Barbot, in his large work on Guinea, says, 'The blacks have sufficient sense and understanding, their conceptions are quick and accurate, and their memory possesses extraordinary strength: for, although they can neither read nor write, they never fall into confusion or error in the great hurry of business and traffic. Their experience of the knavery of Europeans has put them completely on their guard in transactions of exchange; they carefully examine all our goods, piece by piece, to ascertain if their quality and measure are correctly stated; and show as much sagacity and clearness in all these transactions, as any European tradesman could do.'

Of those imitative arts, in which perfection can be attained only in an improved state of society, it is natural to suppose that the Negroes can have little knowledge; but the fabric and colors of the Guinea cloths are proofs of their native in-

genuity; and that they are capable of learning all kinds of the more delicate manual labors, is proved by the fact, that nine-tenths of the artificers in the West Indies are Negroes. Many are expert carpenters, and some watchmakers.

The drawings and busts executed by the wild Bosjesmen in the neighborhood of the Cape, are praised by Barrow for their accuracy of outline and correctness of proportion.

Negroes have been known to earn so much in this country by their musical exertions, as to purchase their freedom with large sums. The younger Freidig, in Vienna, was an expert performer, both on the violin and violoncello; he was also a capital draftsman, and had made an excellent painting of himself. Mr. Edwards, however, speaks very contemptuously of their musical talents in general: he says, 'they prefer a loud and long-continued noise to the finest harmony; and frequently consume the whole night in beating on a board with a stick.'

The capacity of the Negroes for the mathematical and physical sciences is proved by Hannibal, a colonel in the Russian artillery, and Lislet, of the Isle of France, who was named a corresponding member of the French Academy of Sciences, on account of his excellent meteorological observations. Fuller, of Maryland, was an extraordinary example of quickness in reckoning. Being asked in a company, for the purpose of trying his powers, how many seconds a person had lived who was seventy years and some months old, he gave the answer in a minute and a half. On reckoning it up after him, a different result was obtained: 'Have not you forgotten the leap years?' said the Negro. This omission was supplied, and the number then agreed with his answer.

Boerhaave and De Haen have given the strongest testimony that our black brethren possess no mean insight into practical medicine; and several have been known as very dexterous surgeons. A Negress at Yverdun is mentioned by Blumenbach as a celebrated midwife of real knowledge, and an experienced hand.

Omitting Madocks, a Methodist preacher, and not attempting to enumerate all the Negroes who have written poems, we may mention that Blumenbach possesses English, Dutch, and Latin poetry, by different Negroes.

In 1734, A. W. Amo, an African from the coast of Guinea, took the degree of Doctor at the University of Wittenberg; and displayed, according to Blumenbach, in two disputations, extensive and well-digested reading in the physiological books of the time.

Jac. Eliz. Joh. Capitein, who was bought by a slave dealer when eight years old, studied theology at Leyden, and published several sermons and poems. His *Dissertatio de Servitute Libertati Christianæ non contraria* went through four editions very quickly. He was ordained in Amsterdam, and went to Elmina on the Gold Coast, where he was either murdered, or exchanged for the life and faith of his countrymen those he had learned in Europe.

Ignatius Sancho and Gustavus Vasa—the former born in a slave ship on its passage from Guinea to the West Indies, and the latter in the kingdom of Benin—have distinguished themselves as literary characters in England, in modern times. Their works and lives are so well known, and so easily accessible, that it is only necessary to mention them.

On reviewing these instances, which indeed must be received as exceptions to the general results of observation and experience respecting the Negro faculties, we may observe, with Blumenbach, from whom some of them are borrowed, that entire and large provinces of Europe might be named, in which it would be difficult to meet with such good writers, poets, philosophers and correspondents of the French Academy. These insulated facts are not, however, adduced to prove that the African enjoys an equality of moral and intellectual attributes with the European race; but merely to show, that, of the dark-colored people, none have distinguished themselves by stronger proofs of capacity for literary and scientific cultivation, and consequently that none approach more nearly than the Negro to the polished nations of the globe. That the Ethiopian, taken altogether, is decidedly inferior to the Caucasian variety in the qualities of the heart and of the head, will be soon recognized by any one who attentively weighs the representations of all unprejudiced and disinterested observers respecting the conduct, capabilities, and character of the Africans, whether in their own country, in the West Indies, or in America; and the continuance of the whole race, for more than twenty centuries, in a condition which, in its best form, is little elevated above absolute barbarism, must give to this conviction the clear light and full force of demonstration. We cannot therefore admit, without some restriction and explanation, the quaint but humane expression of the preacher who called the Negro 'God's image, like ourselves, though carved in ebony.'

As the external influences of climate, soil, situation, way of life, degree of civilization, habits, customs, form of government, religion, education, are manifestly inadequate to ac-

count for the very marked differences which, at all times, in all countries, and under all circumstances, have characterized the white and the dark races, and the various subdivisions of each, we must look deeper for their causes, and seek them in some circumstances inseparably interwoven in the original constitution of man. In conformity with the views already explained respecting the mental part of our being, we refer the varieties of moral feeling, and of capacity for knowledge and reflection, to those diversities of cerebral organization which are indicated by, and correspond to, the differences in the shape of the skull. If the nobler attributes of man reside in the cerebral hemispheres—if the prerogatives which lift him so much above the brute are satisfactorily accounted for by the superior developement of those important parts, the various degrees and kinds of moral feeling and of intellectual power may be consistently explained, by the numerous and obvious differences of size in the various cerebral parts, besides which there may be peculiarities of internal organization not appreciable by our means of inquiry. Proceeding on these data, we shall find, in the comparison of the crania of the white and dark races, a sufficient explanation of the superiority constantly evinced by the former, and of the inferior subordinate lot to which the latter have been irrevocably doomed.

If examples can be adduced, either of nations having such a form of the brain and head as that which characterizes the Caucasian variety of man, placed under favorable circumstances for the developement of their moral and intellectual powers, and yet not advancing beyond the point which has been reached by the Africans or American tribes of the present time; or of the people, organized like the dark varieties, and reaching, under any circumstances, that degree of moral and intellectual cultivation which exists in the several polished countries of Europe, the preceding reasoning will be overturned: if no such instance can be brought forward, the conclusion, that the marked differences between the white and dark-colored divisions of our species arise from original distinctions of organization, and not from adventitious circumstances, remains unshaken.

We cannot but respect the feelings of philanthropy, and the motives of benevolence, which have prompted many of our countrymen to exert themselves in behalf of the unenlightened and oppressed: we cannot contemplate without strong admiration, the heroic self-denial, and the generous devotion of those, who, foregoing the comforts, luxuries and rational

enjoyments of polished society, expose themselves to noxious climates and to all the perils of unknown countries, in order to win over the savage to the settled habits, the useful arts, and the various advantages of civilized life, to rescue him from the terrors of superstition, and bestow on him the inestimable blessings of mental culture and pure religion. But our expectations and exertions in this, as in other cases, must be limited by the natural capabilities of the subject. The retreating forehead and the depressed vertex of the dark varieties of man, make us strongly doubt whether they are susceptible of these high destinies;—whether they are capable of fathoming the depths of science; of understanding and appreciating the doctrines and the mysteries of our religion. Variety of powers in the various races corresponds to the differences, both in kind and degree, which characterize the individuals of each race—indeed, to the general character of all nature, in which uniformity is most carefully avoided. To expect that the Americans or Africans can be raised by any culture to an equal height in moral sentiments and intellectual energy with Europeans, appears to us quite as unreasonable as it would be to hope that the bull-dog may equal the greyhound in speed; that the latter may be taught to hunt by scent like the hound; or that the mastiff may rival in talents and acquirements the sagacious and docile poodle.

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## THE BALD EAGLE.

GRAND DIVISION—*Vertebralia*, possessing a vertebral column or spine. CLASS—*Aves*, comprising birds. ORDER—*Accipitres*, being of a rapacious nature. GENUS—*Falco*, comprising eagles. SPECIES—*Leucocephalus*, having a white, shining head.

THE figure of this noble bird is well known throughout the civilized world, emblazoned as it is on our national standard, which waves in the breeze of every clime, bearing to the distant lands the remembrance of a great people living in a state of peaceful freedom. May that peaceful freedom last forever!

The celebrated cataract of Niagara is a noted place of resort for the bald eagle, as well on account of the fish procured there, as for the numerous carcases of squirrels, deer, bears,

and various other animals, that in their attempts to cross the river above the falls, have been dragged into the current, and precipitated down that tremendous gulf, where, among the rocks that bound the rapids below, they furnish a rich repast for the vulture, the raven and the bald eagle, the subject of the present account. He has been long known to naturalists, being common to both continents, and occasionally met with from a very high northern latitude, to the borders of the torrid zone, but chiefly in the vicinity of the sea, and along the shores and cliffs of our lakes and large rivers. Formed by nature for braving the severest cold; feeding equally on the produce of the sea and of the land; possessing powers of flight capable of outstripping even the tempests themselves; unawed by anything but man; and, from the ethereal heights to which he soars, looking abroad, at one glance, on an immeasurable expanse of forests, fields, lakes and ocean, deep below him, he appears indifferent to the little localities of change of seasons; as, in a few minutes he can pass from summer to winter, from the lower to the higher regions of the atmosphere, the abode of eternal cold, and from thence descend, at will, to the torrid, or to the arctic regions of the earth. He is, therefore, found at all seasons, in the countries he inhabits; but prefers such places as have been mentioned above, from the great partiality he has for fish.

In procuring these he displays, in a very singular manner, the genius and energy of his character, which is fierce, contemplative, daring and tyrannical—attributes not exerted but on particular occasions, but when put forth, overpowering all opposition. Elevated on the high dead limb of some gigantic tree that commands a wide view of the neighboring shore and ocean, he seems calmly to contemplate the motions of the various feathered tribes that pursue their avocations below; the snow-white gulls slowly winnowing the air; the busy tringæ coursing along the sands; trains of ducks streaming over the surface; silent and watchful cranes, intent and wading; clamorous crows; and all the winged multitudes that subsist by the bounty of this vast liquid magazine of nature. High over all these hovers one, whose action instantly arrests his whole attention. By his wide curvature of wing and sudden suspension in air, he knows him to be the fish hawk, settling over some devoted victim of the deep. His eye kindles at the sight, and advancing himself with half-opened wings, on the branch, he watches the result. Down, rapid as an arrow from heaven, descends the distant object of his atten-

tion, the roar of its wings reaching the ear as it disappears in the deep, making the surges foam around! At this moment the eager looks of the eagle are all ardor; and, levelling his neck for flight, he sees the fish hawk once more emerge, struggling with his prey, and mounting in the air with screams of exultation. These are the signals for our hero, who, launching into the air, instantly gives chase, and soon gains on the fish hawk; each exerts his utmost to mount above the other, displaying in these rencounters the most elegant and sublime evolutions. The unencumbered eagle rapidly advances, and is just on the point of reaching his opponent, when with a sudden scream, probably of despair and honest execration, the latter drops his fish: the eagle poising himself for a moment, as if to take a more certain aim, descends like a whirlwind, snatches it in his grasp ere it reaches the water, and bears his ill-gotten booty silently away to the woods.

These predatory attacks and defensive manœuvres of the eagle and the fish hawk, are matters of daily observation along the whole of our sea board, from Georgia to Maine, and frequently excite great interest in the spectators. Sympathy, however, on this as on most other occasions, generally sides with the honest and laborious sufferer, in opposition to the attacks of power, injustice and rapacity—qualities for which our hero is so generally notorious, and which, in his superior, *man*, are certainly detestable. As for the feelings of the poor fish, they seem altogether out of the question.

When driven, as he sometimes is, by the combined courage and perseverance of the fish hawks from their neighborhood, and forced to hunt for himself, he retires more inland, in search of young pigs, of which he destroys great numbers. In the lower parts of Virginia and North Carolina, where the inhabitants raise vast herds of these animals, complaints of this kind are very general against him. He also destroys young lambs in the early part of spring; and will sometimes attack old sickly sheep, aiming furiously at their eyes.

'The bald eagles,' says Mr. Gardiner, who resided on an island of three thousand acres, about three miles from the eastern point of Long Island, 'remain on this island during the whole winter. They can be most easily discovered on evenings by their loud snoring while asleep on high oak trees; and, when awake, their hearing seems to be nearly as good as their sight. I saw one flying with a lamb ten days old, and which it dropped on the ground from about ten or twelve feet high. The struggling of the lamb, more than its

weight, prevented his carrying it away. My running, hallooing, and being very near might prevent his completing his design. He had broke the back in the act of seizing it; and I was under the necessity of killing it outright to prevent its misery. The lamb's dam seemed astonished to see her innocent offspring borne off into the air by a bird.

'I was lately told by a man of truth, that he saw an eagle rob a hawk of its fish, and the hawk seemed so enraged as to fly down at the eagle, while the eagle very deliberately, in the air, threw himself partly over on his back, and while he grasped with one foot the fish, extended the other to threaten or seize the hawk. I have known several hawks unite to attack the eagle; but never knew a single one to do it. The eagle seems to regard the hawks as the hawks do the king birds, only as teasing, troublesome fellows.'

The same gentleman gives an account of one shot on this island which weighed thirteen pounds, and measured three feet in length, and seven from tip to tip of the expanded wings; was extremely fierce looking; though wounded, would turn his back to no one; fastened his claws into the head of a dog, and was with difficulty disengaged. 'I have rode,' says he 'on horseback within five or six rods of one, who by his bold demeanor, raising his feathers, &c. seemed willing to dispute the ground with its owner. The crop of the present was full of mutton, from my part blooded merinos; and his intestines contained feathers, which he probably devoured with a duck, or winter gull, as I observed an entire foot and leg of some water fowl. I had two killed previous to this, which weighed ten pounds avoirdupois each.'

The intrepidity of character, mentioned above, may be further illustrated by the following fact, which occurred near Great Egg Harbor, N. J. A woman happened to be weeding in the garden, had set her child down near, to amuse itself while she was at work; when a sudden and extraordinary rushing sound, and a scream from her child, alarmed her, and, starting up, she beheld the infant thrown down, and dragged some few feet, and a large bald eagle bearing off a fragment of its frock, which being the only part it seized, and giving way, providentially saved the life of the infant.

The appetite of the bald eagle, though habituated to long fasting, is of the most voracious, and often of the most delicate kind. Fish, when they can be obtained, are preferred to all other fare. Young lambs and pigs are dainty morsels, and made free with on all favorable occasions. Ducks, geese, gulls and other sea fowl, are also seized with great avidity.

The most putrid carrion, when nothing better can be had, is acceptable; and the collected groups of gormandizing vultures, on the approach of this dignified personage, instantly disperse, and make way for their master, waiting his departure in sullen silence, and at a respectful distance on the adjacent trees.

In one of those partial migrations of tree squirrels that sometimes take place in our western forests, many thousands of them were drowned in attempting to cross the Ohio; and at a certain place, not far from Wheeling, a prodigious number of their dead bodies were floated to the shore by an eddy. Here the vultures assembled in great force, and had regaled themselves for some time, when a bald eagle made his appearance, and took sole possession of the premises, keeping the whole vultures at their proper distance for several days. He has also been seen navigating the same river on a floating carrion, though scarcely raised above the surface of the water, and tugging at the carcass, regardless of snags, sawyers, planters or shallows. He sometimes carries his tyranny to great extremes against the vultures. In hard times, when food happens to be scarce, should he accidentally meet with one of these who has its craw crammed with carrion, he attacks it fiercely in the air; the cowardly vulture instantly disgorges, and the delicious contents are snatched up by the eagle before they reach the ground.

The nest of this species is generally fixed on a very large and lofty tree, often in a swamp or morass, and difficult to be ascended. On some noted tree of this description, often a pine or cypress, the bald eagle builds, year after year, for a long series of years. When both male and female have been shot from the nest, another pair has soon after taken possession. The nest is large, being added to and repaired every season until it becomes a black prominent mass, observed at a considerable distance. It is formed of large sticks, sods, earthy rubbish, hay, moss, &c. Many have stated that the female lays first a single egg, and that after having sat on it for some time, she lays another; when the first is hatched, the warmth of that, it is supposed, hatches the other. Whether this be correct or not, we cannot determine; but a very respectable gentleman of Virginia observed, that he saw a large tree cut down containing the nest of a bald eagle, in which were two young, one of which appeared nearly three times as old as the other. As a proof of their attachment to their young, a gentleman near Norfolk states, that, in clearing a piece of wood on his place, they met with a large dead pine tree, on

which was a bald eagle's nest and young. The tree being on fire more than half way up, the flames rapidly ascending, the parent eagle darted around and among the flames, until her plumage was so much injured that it was with difficulty she could make her escape, and even then, she several times attempted to return to relieve her offspring.

No bird provides more abundantly for its young than the bald eagle. Fish are daily carried thither in numbers so that they sometimes lie scattered round the tree, and the putrid smell of the nest may be distinguished at the distance of several hundred yards. The young are at first covered with a thick whitish or cream colored cottony down; they gradually become of a gray color, as their plumage developes itself, continue of the brown gray until the third year, when the white begins to make its appearance on the head, neck, tail coverts and tail; these by the end of the fourth year are completely white, or slightly tinged with cream; the eye is also at first hazel, but gradually brightens into a brilliant straw color, with the white plumage of the head. Such at least was the gradual progress of this change, witnessed by Mr. Wilson, on a very fine specimen brought up by a gentleman who for a considerable time, believed it to be what is usually called the gray eagle, and was much surprised at the gradual metamorphosis. This will account for the circumstance, so frequently observed, of the gray and white-headed eagle being seen together, both being, in fact, the same species, in different stages of color, according to their difference of age.

The flight of the bald eagle, when taken into consideration with the ardor and energy of his character, is noble and interesting. Sometimes the human eye can just discern him like a minute speck, moving in slow curvatures, along the face of the heavens, as if reconnoitring the earth at that immense distance. Sometimes he glides along in a direct horizontal line, at a vast height, with expanded and unmoving wings, till he gradually disappears in the distant blue ether. Seen gliding in easy circles over the high shores and mountainous cliffs that tower above the Hudson and Susquehanna, he attracts the eye of the intelligent voyager, and adds great interest to the scenery. At the great cataract of Niagara, already mentioned, there rises from the gulf into which the falls of the Horseshoe descend, a stupendous column of smoke, or spray, reaching to the heavens, and moving off in large black clouds, according to the direction of the wind, forming a very striking and majestic appearance. The eagles

are here seen sailing about, sometimes losing themselves in this thick column, and again re-appearing in another place, with such ease and elegance of motion, as renders the whole truly sublime.

'High o'er the watery uproar, silent seen,
Sailing sedate in majesty serene,
Now midst the pillared spray sublimely lost,
And now, emerging, down the rapids tossed,
Glides the bald eagle, gazing calm and slow,
O'er all the horrors of the scene below;
Intent alone to sate himself with blood,
From the torn victims of the raging flood.'

The white headed eagle is three feet long, and seven feet in extent; the bill is of a rich yellow; cere the same, slightly tinged with green; mouth, flesh-colored, tip of the tongue bluish black; the head, chief part of the neck, vent, tail coverts and tail, are white in the perfect or old birds of both sexes,—in those under three years of age these parts are of a gray brown; the rest of the plumage is deep dark brown, each feather tipped with pale brown, lightest on the shoulder of the wing, and darkest towards its extremities. The conformation of the wing is admirably adapted for the support of so large a bird; it measures two feet in breadth on the greater quills, and sixteen inches on the lesser; the longest primaries are twenty inches in length, and upwards of an inch in circumference where they enter the skin; the broadest secondaries are three inches in breadth across the vane; the scapulars are very large and broad, spreading from the back to the wing, to prevent the air from passing through; another range of broad flat feathers, from three to ten inches in length, also extend from the lower part of the breast to the wing below, for the same purpose; between these lies a deep triangular cavity; the thighs are remarkably thick, strong and muscular, covered with long feathers pointing backwards, usually called the femoral feathers; the legs, which are covered half way below the knee, before, with dark brown downy feathers, are of a rich yellow, the color of ripe Indian corn; feet the same; claws, blue black, very large and strong, particularly the inner one, which is considerably the largest; soles, very rough and warty; the eye is sunk under a bony, or cartilaginous projection, of a pale yellow color, and is turned considerably forwards, not standing parallel with the cheeks, the iris is of a bright straw color, pupil black.

The male is generally two or three inches shorter than the female; the white on the head, neck and tail being more tinged with yellowish, and its whole appearance less formidable; the brown plumage is also lighter, and the bird itself less daring than the female,—a circumstance common to almost all birds of prey.

The eagle has the several auxiliaries to digestion and assimilation in common with man. The liver is usually large. It secretes bile, which stimulates the intestines, prepares the chyle for blood, and by this very secretion of bile, separates or removes some obnoxious principles from the blood. The intestines are also large, long, convolute and supplied with numerous lacteal vessels, which differ little from those of man, except in color, which is transparent. The kidneys are large, and seated on each side of the vertebræ, near the anus. They are also destined to secrete some offensive principles from the blood.

The eggs are small and numerous, and no sensible increase takes place in them till the *particular* season. This may account for the unusual excitement which prevails in these birds in the sexual intercourse. Why there are so many eggs, is a mystery. It is perhaps consistent with natural law, that everything should be abundant; but, from this bird it is said, no more than two young are hatched in a season, consequently, no more eggs are wanted than a sufficiency to produce that effect. Are the eggs numbered originally, and is there no increase of number, but a gradual loss, till all are deposited? If so, the number may correspond to the long life and vigorous health of this noble bird. Why there is but two young in a season, is easily explained. Nature has been studiously parsimonious of her physical strength, from whence the tribes of animals incapable to resist, derive security and confidence.

The eagle is said to live to a great age—sixty, eighty, and, as some assert, one hundred years. This circumstance is remarkable, when we consider the seeming intemperate habits of the bird. Sometimes fasting, through necessity, for several days, and at other times gorging itself with animal food till its craw swells out the plumage of that part, forming a large protuberance on the breast. This, however, is its natural food, and for these habits its whole organization is particularly adapted. It has not, like man, invented rich wines, ardent spirits, and a thousand artificial poisons, in the form of soups, sauces and sweet

meats. Its food is simple, it indulges freely, uses great exercise, breathes the purest air, is healthy, vigorous and long-lived. The lords of the creation themselves might derive some useful hints from these facts, were they not already in general to wise, or to proud, to learn from their *inferiors*, the fowls of the air and the beasts of the field.

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## THE COFFEE TREE.

NATURAL ORDER—*Rubiaceae*, resembling the rubia in flowers and medicinal properties, being weak, tonic and aperient. CLASS—*Pentandria*, having five stamens. ORDER—*Monogynia*, having but one pistil. GENUS—*Coffea*, comprising coffee. Calyx, 5-toothed, superior: corol, 1-petalled, salver-shaped: staminate flowers, filaments, five, subulate; pistilate flowers, germ roundish, inferior: berry, roundish: seeds, one or two, solitary. SPECIES—*Arabica*, native of Arabia.

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THIS berry, which affords such a wholesome and agreeable beverage, is said to have been drunk from time immemorial in Ethiopia, but of this we have no authority; and as the use of most plants has been accidentally discovered, it is probable that the properties of coffee might have been first perceived by a goat herd, (as related by Chambers,) who observed that his cattle, after browsing on this tree, would wake and caper all night, and that a prior of a monastery, being informed of it, first tried it on his monks, to prevent their sleeping at matins.

About the middle of the fifteenth century the use of coffee appears to have been introduced from Persia by Gemaleddin, Mufti of Aden, a city near the mouth of the Red Sea. He, finding it dissipate the fumes which oppress the head, give cheerfulness, and prevent sleep, without injury, recommended it to his dervises, with whom he used to spend the night in prayer. It was soon after this drunk at Aden, by all studious persons and those who travelled by night. It was progressively used at Mecca, Medina, &c. and Grand Cairo: hence it continued its progress to Damascus and Aleppo. From the last two places, it was introduced into Constantinople by persons of the name of Shems and Hekin, in the year 1554, each of whom opened a public coffee house in that city. These houses becoming a rendezvous for newsmongers, who

made too free with state affairs, were suppressed by Cuproli, the Grand Vizier.

Rauwolfus, who was in the Levant in 1573, was the first European author who made any mention of coffee.

The Venetians seem to be next who used coffee. Pietro Della Valle, a Venetian, writes from Constantinople in 1615, informing his friend, that upon his return he should bring him some coffee, which he believed was a thing unknown in that country.

Lord Chancellor Bacon makes mention of it in 1624: he says, 'the Turks have a drink they call coffee, made with boiling water from a berry reduced into powder, which makes the water black as soot, and is of a pungent and aromatic smell, and is drunk warm.'

M. La Rogue, who published his journey into Arabia Felix, in 1715, contends that his father having been with M. de la Haye, the French ambassador at Constantinople, did, when he returned to Marseilles, in 1644, drink coffee every day; but the same author acknowledges that it was M. Thevenot, who taught the French to drink coffee on his return from the East, in 1657. It was made fashionable and more known in Paris, in 1669, by Soliman Aga, ambassador from Sultan Mahomet the Fourth, who gave coffee at all his parties with great magnificence; and it could not fail being pronounced an agreeable beverage by the Parisian ladies, after they had received it from his slaves with bended knee. If it were a matter of policy with the Turks to get coffee introduced into France, the ambassador's splendid porcelain, equipage, and gold-fringed napkins, were the best recommendation that could have been given to a people who are so naturally fond of show.

Two years after, it was sold in public at the Foire St. Germaine, by Pascal, an Armenian, who afterwards set up a coffee house on the Quai de l' Ecole; but not being encouraged in Paris, he left that city and went to London: however, soon after this, some spacious rooms were opened in Paris, for the sale of coffee, and they soon increased to upwards of three hundred.

It is said to have been first brought to England by Mr. N. Conopius, a Cretan, who made it his common beverage, at Baliol College, at Oxford, in the year 1641, and that the first coffee house in England was kept by one Jacob, a Jew, at the sign of the angel in Oxford, in 1650. Coffee was first publicly known in London, in 1652, when Mr. Daniel Edwards, a Turkish merchant, brought home with him a Ragusan

Greek servant, whose name was Pasqua Rosée who understood the roasting and making of coffee, and kept a house for the purpose in George Yard, Lombard street, or rather, according to Mr. Houghton, in a shed in the churchyard of St. Michael's, Cornhill. The famous Dr. Harvey used it frequently. Mr. Ray affirms that in 1688 London might rival Grand Cairo in the number of its coffee houses, so rapidly had it come into use; and it is thought that they were augmented and established more firmly by the ill-judged proclamation of Charles II. in 1675, to shut up coffee houses as seminaries of sedition. This act was suspended in a few days.

The first mention of coffee in the English statute books, is in 1660, by which a duty of four pence was laid upon every gallon of coffee bought or sold.

The Arabs seem to have been very jealous of letting this tree be known, and in order to confine the commodity to themselves, they destroyed the vegetative quality of the seeds; but Nicholas Witsen, burgomaster of Amsterdam, and governor of the East India Company, desired Van Hoorn, governor of Batavia, to procure from Mocha, in Arabia Felix, some berries of the coffee tree, which were obtained and sown at Batavia; and about the year 1690, several plants having been raised from seeds, Van Hoorn sent one over to Gov. Witsen, who presented it to the garden at Amsterdam. It there bore fruit, which in a short time produced many young plants; from these, the East Indies and most of the gardens in Europe have been furnished. In 1696 it was cultivated at Fulham, England, by Bishop Compton, and in 1714, the magistrates of Amsterdam presented Louis XIV. with a coffee tree, which was sent to the royal garden at Marli. In 1718, the Dutch colony at Surinam began first to plant coffee; and in 1722, M. de la Motte Aigron, governor of Cayenne, contrived by an artifice to bring away a plant from Surinam, which by the year 1725, had produced many thousands. The French authors affirm that it was planted in the Isle of Bourbon in the year 1718, having been obtained from Mocha: this seems doubtful; but it is ascertained that M. Clieux carried the first coffee plant to Martinique, in 1720. M. Fusée Aublet states that one tree only survived in the Isle of Bourbon, which bore fruit in 1720. From Martinique it spread to the neighboring islands. Sir Nicholas Laws first introduced it into Jamaica, in the year 1728, and planted at Townwell Estate, now called Temple Hall, in Liguanea: the first berries produced from this tree sold at a *bit* each. which is equal to six pence. In the year 1752 the exports of coffee from Jamaica were rated at 60,000 pounds; and it has continued regularly to

increase since that time, except when additional duties have been laid on, which have as regularly lessened the exports and the revenue also.

In 1808, the exports from Jamaica were 29,528,273 pounds; the next year they were lessened about 4,000,000 pounds; in 1812 the exports were 18,481,986 pounds.

The coffee tree seldom rises more than sixteen or eighteen feet in its native country, or more than ten or twelve in Europe or the United States. The main stem grows upright, and is covered with a light brown bark. Branches horizontal, opposite, brachiate at every joint, the lower ones longest, the others gradually decreasing to the top, so as to form a pyramid. Leaves opposite, when fully grown, four or five inches long, and an inch an a half broad in the middle, the borders waved, the surface of a lucid green, and generally continue three years. The flowers are produced in clusters, from two to four, at the base of the leaves, sitting close to the branches; they put forth from August to November, and are of a pure white, with a very grateful odor, but of short duration: they are succeeded by berries, which are at first green, but turn red when fully grown, and change to black when ripe. They are of an oblong, spheroidal form, with a little circular area at the top, within which is a callous dot; the pulp is pale, insipid and gelatinous; within it is two-celled; and the partition is fleshy and vascular: this is the only receptacle, and penetrates the cleft of the seeds. In each cell is one seed only, of an elliptic form, convex on one side and flat on the other, with a longitudinal cleft, of a pale glaucous color, loosely covered with an elastic, diaphanous aril, the substance of paper. These seeds are the coffee as we see it before it undergoes the process of roasting.

Every gentleman who has stoves should raise this tree for the beauty of its appearance. Its fine dark green leaves make a beautiful contrast with the clusters of pure white blossoms, which perfume the air with odor like jassamine. Nothing can be conceived more delightful and grateful than the appearance and perfume of a field of coffee trees when in full bloom: it has the resemblance of a shower of snow, which nearly obscures the dark green branches. The tree produces small fruit, and better flavored as it becomes older.

The Turkey coffee is the smallest berry, and is more esteemed for its flavor than that which grows in the West Indies. It is supposed that one great cause of the American coffee being inferior in point of flavor, is owing to the practice of gathering the berries before they are quite ripe, whereas the Arabians shake their trees, and by this means obtain

the berries in full perfection. Mr. Lunan observes, that the West Indian berries, being considerably larger than those of the Turkey coffee tree, require much longer keeping; but Mr. Miller, the celebrated English gardener, is of opinion, that the coffee does not require long keeping, and that it loses a part of its flavor. He states that two gentlemen, who resided two years in Arabia, assured him that the berries, when first ripe, were very superior to those which had been kept: he also states, that from plants brought from the West Indies, and raised in English hot houses, coffee berries have been produced, which, at a proper age, were found to surpass the very best Mocha that could be produced in Great Britain. Jamaica coffee is often sold as Turkey coffee in London, and there have been many samples sent from thence, that have proved quite equal to the Arabian berries. As coffee readily imbibes the smell or flavor of any article with which it comes in contact, it is often injured in the voyage home, by being stowed near sugar, rum, pimento, &c. &c. and the flavor which it thus acquires, cannot be separated again, even by roasting.

Great attention is paid to the culture of coffee in Arabia. The trees are raised from seeds sown in nurseries, and afterwards set out in moist and shady situations, on sloping grounds, or at the foot of mountains. Care is taken to conduct little rills of water to the roots of the trees, which at certain seasons, require to be constantly surrounded with moisture. As soon as the fruit is nearly ripe, the water is turned off, lest the fruit should be rendered too succulent. In places much exposed to the south, the trees are planted in rows, and are shaded from the otherwise too intense heat of the sun, by a branching kind of poplar tree. When the fruit has attained its maturity, cloths are placed under the trees, and upon these the laborers shake it down. They afterwards spread the berries on mats, and expose them to the sun to dry. The husk is then broken off by large and heavy rollers of wood or iron. When the coffee has been thus cleared of its husk, it is again dried in the sun, and, lastly, winnowed with a large fan, for the purpose of clearing it from the pieces of husks with which it is intermingled.

A pound of coffee is generally more than the produce of one tree; but a tree in great vigor will produce three or four pounds.

The excellence of coffee depends, in a great measure, on the skill and attention exercised in roasting it. If it be too little roasted, it is devoid of flavor, and if too much, it becomes acrid, and has a disagreeable, burnt taste. In Europe, it is

usually roasted in a cylindrical tin box, perforated with numerous holes, and fixed upon a spit, which runs lengthwise through the centre, and is turned by a jack, or by the hand. Coffee is used either in the form of an infusion or decoction, of which the former is decidedly preferable both as regards flavor and strength. Coffee, as very often prepared by persons unacquainted with its nature, is a decoction, and is boiled for some time, under a mistaken notion that the strength is not extracted unless it be boiled. But the fact is just the reverse. The fine aromatic oil, which produces the flavor and strength of coffee, is dispelled and lost by boiling, and a mucilage is extracted at the same time, which also tends to make it flat and weak. The best modes are, to pour boiling water through the coffee in a biggin or strainer, which is found to extract nearly all the strength; or to pour boiling water upon it, and set it upon the fire, not to exceed ten minutes. Prepared in either way, it is fine and strong. There are coffee machines, in which the water is boiled, and the steam penetrates the coffee, and extracts, to a great degree, the fine aroma. Immediately after, the boiling water is poured over it. Thus the best coffee is made. As we have already observed, in Europe coffee is generally roasted in a cylinder; in Asia, however, open pans or tin plates are used, and, if the time allows, a boy is employed, who picks out every bean, when it has reached the right degree of brownness. The same is done by some French people. The second difference in the Asiatic way of preparing coffee is, that they pound the beans, and do not grind them, much preferring the former mode. In Marseilles, coffee is likewise pounded. Whether this is really preferable, we do not venture to decide; but it is stated, that the Asiatic coffee is much better than the European. The difference is probably owing to the different manner of roasting. The Turks and Arabs boil the coffee, it is true, but they boil each cup by itself, and only for a moment, so that the effect is, in fact, much the same as that of infusion, and not like that of decoction. They do not separate the coffee itself from the infusion, but have the whole in the cup. It improves the beverage very much to roast and grind the coffee just before it is used.

The Turks drink coffee at all times of the day, present it to visitors both in the forenoon and afternoon; and the opium eater lives almost entirely on coffee and opium. Beaujour mentions an opium eater, who drank more than sixty cups of coffee in a day, and smoked as many pipes. The best coffee in the western part of the world, is made in France, where this beverage is in universal request. In fact, throughout the

continent of Europe, it is generally drunk. In England, however, tea is a more common drink. In the United States and England, coffee, almost always, is badly made. It is too weak and is sweetened too much with sugar, which often causes it to turn acid on the stomach.

The most eminent physicians of every country have recommended the use of coffee for various complaints. It greatly relieves the head-ache, and is recommended to those of constitutional weak stomachs, as it accelerates the process of digestion, takes away languor and listlessness, and affords a pleasing sensation.

Coffee is often found useful in quieting tickling, vexatious coughs. Sir John Floyer, who had been afflicted with the asthma for sixty years, was relieved by strong coffee.

The great use of coffee in France is supposed to have abated the prevalency of the gravel; for where coffee is used as a constant beverage, the gravel and gout are scarcely known.

Voltaire lived almost entirely on coffee, and said nothing exhilarated his spirits so much as the smell of it; for which reason, he had what he was about to use in the day roasted in his chamber, every morning, when he lived at Fernai.

The Turks will subsist almost entirely on coffee, except during the rigid fast of the *Ramadan*, or Turkish Lent, which lasts forty days; during which time they neither eat, drink, nor smoke, while the sun is over the horizon; and the use of coffee is then so strictly forbidden, that those who have even the smell of coffee on them, are deemed to have violated the injunctions of their prophet.

Among the various qualities of coffee, that of its being an antidote to the abuse of opium, must make it an invaluable article with the Turks.

Those who use opiates at night would find the advantage of taking strong coffee in the morning.

Dr. Mosely, in his learned and ingenious treatise, states, that, 'the chemical analysis of coffee evinces that it possesses a great portion of mildly bitter, and lightly astringent gummous and resinous extract, a considerable quantity of oil, a fixed salt, and a volatile salt. These are its medicinal constituent principles. The intention of torrefaction is not only to make it deliver those principles, and make them soluble in water, but to give it a property it does not possess in the natural state of the berry. By the action of fire, its leguminous taste, and the aqueous part of its mucilage, are destroyed: its saline properties are created, and disengaged, and its oil is rendered empyreumatical. From thence arises

the pungent smell, and exhilarating flavor not found in its natural state.

'The roasting of the berry to a proper degree, requires great nicety. If it be underdone, its virtues will not be imparted, and in use it will load and oppress the stomach: if it be overdone, it will yield a flat, burnt and bitter taste; its virtues will be destroyed, and in use it will heat the body, and act as an astringent. The closer it is confined, at the time of roasting, and till used, the better will its volatile pungency, flavor and virtues be preserved.

'The influence which coffee, judiciously prepared, imparts to the stomach, from its invigorating qualities, is strongly exemplified by the immediate effect produced on taking it when the stomach is overloaded with food, or nauseated with surfeit, or debilitated by intemperance, or languid from inaction.

'In vertigo, lethargy, catarrh, and all disorders of the head, from obstructions in the capillaries, long experience has proved it to be a powerful medicine; and in certain cases of apoplexy, it has been found serviceable even when given in clysters, where it has been convenient to convey its effects to the stomach. M. Malebranche restored a person from apoplexy by repeated clysters of coffee.

'Du Four relates an extraordinary instance of the effect of coffee in the gout: he says, M. Deverau was attacked with the gout at 25 years of age, and had it severely until he was upwards of 50, with chalk stones in the joints of his hands and feet: he was recommended to the use of coffee, which he adopted, and had no return of the gout.

'A small cup or two of coffee, immediately after dinner, promotes digestion.

'With a draught of water previously drunk according to the Eastern custom, coffee is serviceable to those who are of a costive habit.'

Count Rumford says, 'Coffee may be too bitter; but it is impossible that it should ever be too fragrant. The very smell of it is reviving, and has often been found to be useful to sick persons, and to those who are afflicted with the head-ache. In short, everything proves that the volatile, aromatic matter, whatever it may be, that gives flavor to coffee, is what is most valuable in it, and should be preserved with the greatest care, and that, in estimating the strength or richness of that beverage, its fragrance should be much more attended to, than either its bitterness or its astringency. This aromatic substance, which is supposed to be an oil, is extremely volatile, and escapes into the air with great facility, as is observed by its filling a room with its fragrance, if suffered to remain uncovered, and at the same time losing much of its flavor.'

## INFLUENCE OF CLIMATE ON THE FRUITFULNESS OF PLANTS.

From the American Journal of Geology.

THE cultivated plants yield the greatest products near the northernmost limit in which they will grow.

I have been forcibly impressed with this fact, from observing the productions of the various plants, which are cultivated for food and clothing in the United States. The following instances will go far to establish the principle, viz:

The cotton, which is a tropical plant yields the best staple and surest product, in the temperate latitudes. The southern parts of the United States have taken the cotton market from the East and West Indies, both as regards quantity and quality. This is partly owing to the prevalence of insects within the tropics, but principally to the forcing nature of a vertical sun. Such a degree of heat developes the plant too rapidly—runs it into wood and foliage, which become injuriously luxuriant; the consequence is, there are but few seed pods, and these covered with a thin harsh coat of wool. The cotton wool, like the fur of animals, is, perhaps, designed for protection, and will be thick and fine in proportion as the climate is warm or cool. Another reason is to be found in the providence of the Deity, who aims to preserve races rather than individuals, and multiplies the seeds and eyes of plants exactly as there is danger of their being destroyed by the severity of the climate, or other causes. When, therefore, the cares and labors of man counteract the destructive tendency of the climate, and guarantee their preservation, they are, of course, more available and abundant.

The lint plants, flax, hemp, &c. are cultivated through a great extent of latitude; but their bark, in the southern climates, is harsh and brittle. A warm climate forces these plants so rapidly into maturity, that the lint does not acquire either consistency or tenacity. We must go far north in Europe, even to the Baltic, to find these plants in perfection, and their products very merchantable. Ireland is rather an exception as to latitude; but the influence of the sun is so effectually counteracted there by moisture, and exposure to the sea air, that it is always cool; hence the flax and potatoe arrive at such perfection in that region.

It holds equally true in the farinaceous plants. Rice is a tropical plant; yet Carolina and Georgia grow the finest in the world; heavier grained, better filled, and more merchantable, than any imported into Europe from the Indies. The inhabitants of the East Indies derive their subsistence almost exclusively from rice; they must be supposed, therefore, to cultivate it with all skill and care, and the best contrivances

for irrigation. Such is, however, the forcing nature of their climate, that the plant grows too rapidly, and dries away before the grain be properly filled. Indian corn, or maize, if not a tropical plant, was originally found near the tropics; and although it now occupies a wide range, it produces the heaviest crops near the northern limit of its range. In the West Indies it rises 30 feet in height; but with all that gigantic size, it produces only a few grains on the bottom of a spungy cob, and is counted only as rough provender. In the southern parts of the United States, it reaches a height of 15 feet, and will produce 30 bushels to the acre; in the rich lands of Kentucky and the middle states, it produces 50 or 60 bushels to the acre; but in New York and New England, agricultural societies have actually awarded premiums for 150 bushels to the acre, collected from stalks only seven feet high. The heats of a southern sun develope the juices of this plant too quickly. They run into culm and blade, to the neglect of the seed, and dry away before fructification becomes complete.

Wheat is a more certain crop in New York, the northern part of Pennsylvania and Ohio, and in the Baltic regions of Europe, than in the south, either of Europe or America. In the north, snows accumulate, and not only protect it from the winter colds, but from the weavil, Hessian fly, and other insects that invade it: and in the spring it is not forced too rapidly into head, without time to mature fully, and concoct its farina.

A cold climate also aids the manufacturing of flour, preserving it from acidity, and enables us to keep it long, either for a good market, or to meet scarcities and emergencies. Oats grow in almost every country: but it is in northern regions only, or very moist or elevated tracts, that they fill with farina suitable for human sustenance. Rye barley, buckwheat, millet, and other culmiferous plants, might be adduced to illustrate the above principle; for all their habits require a more northern latitude than is necessary to their mere growth.

The grasses are proverbially in perfection only in northern and cool regions, although they will grow every where. It is in the north alone that we raise animals from meadows, and are enabled to keep them fat, and in good condition, from hay and grass alone, without grain. It is there the grasses acquire a succulence and consistency, enough, not only to mature animals, but to make the richest butter and cheese, that contribute so much to the tables of the luxurious. The grasses which do, often, in the south, grow large enough, are without richness and nutriment; in hay, they have no substance: and when green, are too washy to fatten animals; the consequence is, most animals in those latitudes browse from necessity, and

are poor, and without size or beauty. It is the same hot sun which forces them to a rapid fructification, before they have had time to concoct their juices. The sugarcane produces, perhaps, better where it never seeds, than in the tropics; for the juices will never ripen so as to granulate, until checked by frost or fructification. In the tropics, the cane grows twenty months before the juices ripen; and then the culm has contracted a woody, fibrous quality, to such a degree as to resist the pressure of the mills, and yields but little juice, and that to an increased effort. In Louisiana we succeed well with the sugar culture; because, while the culm is succulent and tender, a white frost checks the growth, ripens the juices, and in five months gives us a culm, tender, full of juice, easy to press, and yielding much grain of sugar. When Louisiana therefore, acquires all the necessary skill, she will most probably grow this article cheaper than the West Indies.

Tobacco is a southern plant, but there it is always light and chaffy; and although often well flavored, it never gains that strong narcotic quality, (which is its only peculiar property,) unless you grow it as far north as Virginia. In the south, the heat unfolds its bud or gem too soon, forces into full expansion the leaf, and drives it to seed before the narcotic quality can be properly elaborated. We may assert a general rule applicable to all annual plants, that neither the root nor the leaf acquires any further size or substance after fructification.

The tuberose, bulbous, and other roots, cultivated for human and animal subsistence, are similarly affected by climate, and manifest habits in corroboration of the above principle. The Irish potatoe, although from or near the tropics, will not come to perfection but in northern or cool countries, or in moist, insular situations, as Ireland. It is in such climates alone, that its roots acquire a farinaceous consistence, and have size, flavor and nutriment enough to support, in the eminent way in which they are susceptible, animal life. In the south, a forcing sun brings the potatoe to fructification before the roots have had time to attain their proper size, or ripen into the proper qualities for nourishment. In Ireland, the plant grows slow, through a long and cool season, giving time for its juices to be elaborated and properly digested; hence that fine farina and flavor which characterizes them. The sweet potatoe produces larger, better flavored, and more numerous roots in Carolina, where it never flowers, than in the West Indies. In the latter place this plant runs wild, covers the whole face of the earth with its vines, and is so

taken up in making foliage, that the root becomes neglected, and is small and woody.—In order to have the onion in perfection, it must grow through two years, swelling all the time its bulbs. In the south, however, it seeds in one year, and before it has made much bulb. Beets, carrots, parsnips, turnips, radishes, and other roots, are equally affected by a hot sun, and scarcely worth cultivating far to the south. They all fructify before they have formed perfect roots, and make foliage at the expense of their bulbs; hence they will always be articles of commerce: the south will have to depend upon the north for them.

The sallad plants are in like manner affected by climate, and give further proofs of our assumption. Cabbages, lettuces, endive, cellery, spinage, plants whose leaves only are eaten, to protect their germs from cold, (through a kind of instinct,) wrap them up in leaves, which form heads, and render many of their other parts tender and crisp for use. These leaves, thus protected, are not only tender, but more nutritious, because their growth has been slow, and their juices well digested. In the south, a relaxing sun lays open the very buds of such plants, gives a toughness and thinness to the leaves, and they are too unsubstantial for animal support, because of such quick and rapid developement.

The delicious and pulpy fruits are, in a still more striking way, illustrative of our principle. The peach, nectarine, plumb, apple, cherry, currant, gooseberry, apricot, and many other such families are not in perfection in the south. It is in Pennsylvania, Virginia, Maryland, Jersey, and in the north of Europe, that we enjoy them, although, originally, they came from places near the tropics. The peach of the Carolinas is full of larvæ, gum and knots, and too stringy and forced to be juicy and flavored. The apple of the south is too acerb to be either eaten or preserved. The plumbs, apricots, cherries, currants, gooseberries, &c. will not even mature until we go far north. All the trees which bear these delicious fruits will grow luxuriantly in the south, make much foliage and wood, with but little pulp, and that unsavory. The kernel in the one-seeded fruit, seems to be the first object of nature in southern climes: that becomes strong, oily and enlarged; and one of the peach family has so entirely neglected the pulp, that it has only a husky matter around the kernel, as the almond. The changeableness of the weather in the south, in the spring season, throws plants off their guard; the frosts attendant on those changes, destroy the young fruit; and it is only one year in three that the crop hits at all. The desiccated or dried state of these fruits ena-

bles us to enjoy them through the year; but in the south their acidity carries them into fermentation or decomposition, before they can be divested of their aqueous parts. The climate of the south is equally against converting them into cider, or any other fermented liquor, because the heat forces their compressed juice so rapidly into an active fermentation, that it cannot easily be checked until it passes into vinegar. For the same reason distillation goes on badly in hot climates, and cannot be checked long enough at the proper point to give much alcohol; and when we aim to enjoy the delicious freshness of these fruits themselves, sip the nectar of their juices, refresh ourselves with their fermented beverage, stimulate our hearts with their brandies and cordials, or feast through the winter upon the dried or preserved stores of their fruits, we are continually baulked by the severity of a southern climate, and for such enjoyment must look to the north.

The melons are always affected by too great a degree of heat, even though their vines flourish so much in southern latitudes. The forcing sun hurries them on to maturity before they have attained much size, or acquired that rich saccharine and aromatic flavor for which they are so much esteemed. The cantelope melon will rot, or have its sides baked by a hot sun, before it is fully formed; and the watermelon is always woody, dry, and devoid of its peculiar sweetness and richness in the south. Vines have been known to run 100 feet, and bear no melon. It is in Philadelphia, and its neighborhood, and in similar latitudes, that the markets are loaded with delicious melons of all sorts, whose flavor so much refresh and delight us. It is there, near the northern limit, that we cultivate them with such uniform success.

The orange, strictly a tropical plant, is more juicy, large and delicious, at St. Augustine, (Florida,) than at Havana; and fruiterers, in order to recommend an orange, will say that it is from some place out of the tropics. In the West Indies, the pulp of the orange is spungy, badly filled with juice, and has too much of a forced flavor to be pleasant. The hot house forcers of Europe, or at Rome, anciently at first produced bad fruit; too dry, too small and without flavor, because they overacted. They have lately found out that fact, and now the productions of the hot houses of London, Paris, &c. astonish and delight us with the quantity and excellence of the fruit. They have found out that gradual and uniform heat is the dissideratum; countervailing the cold, rather than imparting much heat. Fruit thus produced, is pronounced better than any grown in the natural way, however perfect the climate.

The juices of the grape are best matured for wine near the northern limit of their growth. On the Rhine, in Hungary, the sides of the Alps, and in other elevated or northern situations, the wine is strongest, richest and most esteemed. The French wines rank before the Spanish and Italian; and in no southern country of Europe or Africa, except Madeira, where elevation makes the difference, is the wine in much repute. The grapes of France are more delicious for the table than those of Spain or Madeira. In the southern part of the United States, the excess of heat and moisture blights the grape to such an extent, that all attempts have failed in its cultivation. The grape vine, however, whether wild or cultivated, grows there very luxuriantly. The vinous fermentation can also be best conducted in a climate comparatively cool; and all the pressing, fermenting, and distillation of the juice of this delicate fruit, can be safer and more profitably managed in a mild region.

The olive, and other oleaginous plants, yield more fruit, of a richer flavor, and can be better pressed, and the oil preserved, in a mild climate. In France the tree is healthier, and the fruit and oil better than in Spain or Italy; and the Barbary States are known to import their oil from France and Italy.

Many other plants might be named, whose habits would equally support our position. It is presumed, however, that enough have been cited to call the attention of philosophy to this curious subject, and enable us to give proper attention to it, in all the practical operations of agricultural pursuit. Much time and expense might be saved, and profits realized, if this were more generally understood.

We have already observed, that the heat of the sun in southern climes forces plants to a false maturity, runs them on too rapidly to fructification. and renders dry and woody the culms, stalks and leaves of the plants, where these parts are used. Hence the chaffiness of the leaf, the dryness of the culm, the lightness of the grain, and the unsavory, spungy quality of the pulp of the plants in those latitudes. Hence the difficulty of fermenting their juices, distilling their essences, and preserving for use the fruit, juice or blades of such plants. The prevalence of insects is another bar to the productiveness of southern plants: swarms of them invade and strip the leaves, bore the fruit, and lead to blight and decomposition; and just in proportion as the labors of man have rendered plants succulent, and their fruits and seeds sweet and pleasant, do these insects multiply on them, devour their crops, and defeat the objects of husbandry. W.

END OF VOLUME I.